RCRA FACILITY ASSESSMENT REPORT

Westates Carbon-Arizona, Inc.
(US Filter Westates)
2523 Mutahar Street
Parker, Arizona
AZD 982 441 263

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 9
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San Francisco, CA

Date	August 15, 2002
Work Assignment No.	R09203
EPA Region	9
Site No.	AZD 982 441 263
Document Control No.	REPA3-0903-004
Contract No.	68-W-02-022
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1.0 EXECUTIVE SUMMARY

The owner or operator of a facility seeking a Resource Conservation and Recovery Act (RCRA) permit must institute corrective action as necessary to protect human health and the environment. The first step in the RCRA corrective action process is the RCRA Facility Assessment (RFA). The RFA is conducted to determine the presence or potential release of hazardous constituents into the environment from any solid waste management unit (SWMU) at the facility. The main elements of an RFA are: (1) to identify and gather information to characterize all SWMUs and other areas of concern at the facility; (2) to evaluate SWMUs for all releases or potential releases to groundwater, to surface water, to the atmosphere, and to surface and subsurface soils; (3) to make preliminary determinations regarding releases of concern; and (4) to recommend appropriate further action(s) and interim measure(s) at the facility, if needed.

An RFA was conducted for Westates Carbon-Arizona, Inc. (Westates) located in Parker, Arizona. The first phase of the RFA included a Preliminary Review (PR) of the Environmental Protection Agency (EPA) Region 9 and the Arizona Department of Environmental Quality (ADEQ) file material on the Westates facility. A PR Report was completed that outlines the findings of the PR and identifies additional site characterization information needed from the facility to determine whether a release of hazardous constituent(s) has actually or potentially occurred.

Following the completion of the PR, a Visual Site Inspection (VSI) was conducted at the facility on July 12, 2001, to address site characterization information gaps identified in the PR and to visually assess the facility. The Colorado River Indian Tribes (CRIT) were informed by EPA Region 9 about the VSI and were invited to attend but declined to send a representative. During the VSI, all SWMUs identified in the PR report, if present, were visually inspected, and interviews with facility personnel were conducted to gather additional information about the facility. A tour of the facility was conducted and focused on determining the presence of and potential for release of hazardous constituents to the environment, documenting the type of hazardous substances at the site, collecting site characterization information, and identifying all possible SWMUs and areas of concern (AOCs) at the facility.

Following the VSI, Booz Allen Hamilton sent a letter to the CRIT on February 4, 2002 requesting relevant information and data from facility files to complete the RFA. A response was received from a CRIT representative on February 8, 2002, indicating that no additional information or data relevant to the RFA is in the CRIT files.

Westates is a treatment and storage facility that currently manages hazardous waste under RCRA interim status. The facility is located on the Colorado River Indian Reservation about a mile southeast of Parker, Arizona. Westates submitted a Part B

RCRA permit application to EPA Region 9 in November 1995. EPA retains jurisdiction for the RCRA permit decision, as its authority has not been delegated to tribal authority. However, Executive Orders 13084 and 13007 require EPA to engage in consultation processes with the CRIT when the agency makes a decision that may affect tribal lands. This RCRA permit decision could be a permit issuance or a permit denial.

Westates receives spent carbon in containers and tank trucks from off-site customers for treatment. The spent carbon is generated by industrial facilities such as petrochemical refineries, as well as from clean-up sites, such as leaking underground storage tank or Superfund sites. Some of the spent carbon stored and processed at the facility is received from facilities subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Benzene Waste Operations [Subpart FF in 40 Code of Federal Regulations (CFR) 61.340 et seq. of the Clean Air Act (CAA)]. In addition, some of the spent carbon stored and processed at the facility is RCRA hazardous waste since it is contaminated with toxicity characteristic metals and organic compounds, may exhibit a characteristic of ignitability, or may be a listed waste (Appendix F). Therefore, the facility is regulated as a RCRA Treatment, Storage, and Disposal Facility (TSDF).

The spent carbon is reactivated via thermal treatment in a multiple-hearth reactivation furnace. Organic compounds are desorbed from the carbon and thermally destroyed in the high-temperature environment of the furnace. Gases from the furnace are sent to the afterburner, which is designed for combustion of volatile organic material that has not been thermally destroyed in the furnace. Gases from the afterburner pass through air pollution control equipment, which reduces both the acid gas and the particulates in the gas.

The furnace is designed to remove benzene and other organic compounds from the spent carbon to non-detectable levels, and it removes benzene to a level that meets the minimum requirements of Subpart FF of the CAA. According to air emissions tests conducted by Westates [but not verified by EPA (Reference: EPA personal communication, December 3, 2001)] the system achieves destruction and removal efficiency for organic compounds of 99.99% (Appendix G).

The VSI identified 35 SWMUs at the Westates facility. SWMU names are listed in Table 1, along with suggestions for further action. Suggestions for further action are based on visual inspection of the SWMUs, information in the file material, and Westates' responses to questions posed during the VSI.

Three SWMUs identified in the PR Report are no longer operated at the facility. During the VSI, the Westates representatives stated that the slurry transfer inclined plate settler tank (SWMU 33), the scrubber recycle settler tank (SWMU 34), and the filter press (SWMU 35) were removed since they did not provide any measurable benefit and did

not operate as advertised. The use of these SWMUs was discontinued two to four years after their installation and startup in 1992.

Table 1.
SWMU List and Suggestions for Further Action

SWMU		Suggestion For Further Action
1	Spent Carbon Reactivation Furnace RF-1	Interim status RCRA closure should occur at this SWMU.
2	Spent Carbon Reactivation Furnace RF-2	Conduct a thorough review of air emission data during the RCRA permit decision. Perform file reviews of stack emission records (CO, O_2, and plume opacity) during inspections.
3	Air Pollution Control Equipment for RF-1 and RF-2	Conduct a thorough review of air emission data during the RCRA permit decision. Perform file reviews of stack emission records (CO, O_2, and plume opacity) during inspections.
4	Unloading Hopper H-1	Perform file reviews during RCRA inspections to ensure that incidents in which the carbon adsorption canister is unhooked do not re-occur.
5	Unloading Hopper H-2	Perform file reviews during RCRA inspections to ensure that incidents in which the carbon adsorption canister is unhooked do not re-occur.
6	Hopper Air Pollution Control Equipment	No further action is recommended for this SWMU.
7	Spent Carbon Slurry and Recycle Water Transfer System	No further action is recommended for this SWMU.
8	Spent Carbon Storage Warehouse	No further action is recommended for this SWMU.
9	Transfer Area Containment Pad	Check for cracks in future RCRA inspections.
10	Spent Carbon Slurry Storage Tank T-1	Conduct thorough review of wastewater discharge data during the RCRA permit decision.
11	Spent Carbon Slurry Storage Tank T-2	No further action is recommended for this SWMU.
12	Spent Carbon Slurry Storage Tank T-5	No further action is recommended for this SWMU.
13	Spent Carbon Slurry Storage Tank T-6	No further action is recommended for this SWMU.
14	RF-1 Furnace Feed System (Tank T-8, Dewatering Screw, and Weigh Belt Conveyor)	Interim status RCRA closure should occur for this SWMU.

SWMU		Suggestion For Further Action
15	RF-2 Furnace Feed System (Tank T-18, Dewatering Screw, and Weigh Belt Conveyor)	No further action is recommended for this SWMU.
16	Recycled Motive Water Storage Tank T-9	No further action is recommended for this SWMU.
17	Rainwater, Dewatering Screw, and Motive Water Storage Tank T-12	No further action is recommended for this SWMU.
18	Wastewater Storage Tank T-11	No further action is recommended for this SWMU.
19	RF-2 Scrubber Water Equalization Tank T-19	No further action is recommended for this SWMU.
20	Hazardous Waste Debris Bin	No further action is recommended for this SWMU.
21	Spent Carbon Storage Warehouse Grated Trenches and Sump	No further action is recommended for this SWMU.
22	Spent Carbon Storage Warehouse Barrel Washer	No further action is recommended for this SWMU.
23	Bermed Containment Area Under Spent Carbon Slurry Storage Tanks	Further action regarding this SMWU will be pursued under the RCRA compliance program.
24	Sump By Unloading Hopper H-1	No further action is recommended for this SWMU.
25	Sump By Storage Tank T-9	No further action is recommended for this SWMU.
26	Sump By Cooling Screw Under Venturi Scrubber Tank	No further action is recommended for this SWMU.
27	Wastewater Conveyance Piping to Wastewater Treatment Tank	No further action is recommended for this SWMU.
28	Wastewater Lift Station and Piping Systems (Old and New)	A RCRA Facility Investigation is recommended for this SWMU. The integrity of the underground piping system should be investigated.
29	Carbon Adsorber WS-1	RCRA inspectors should closely review change-out logs in future inspections.
30	Carbon Adsorber WS-2	RCRA inspectors should closely review change-out logs in future inspections.
31	Carbon Adsorber WS-3	RCRA inspectors should closely review change-out logs in future inspections.

SWMU		Suggestion For Further Action
32	Carbon Adsorber PV-50	No further action is recommended for this SWMU.
33	Slurry Transfer Inclined Plate Settler Tank	No further action is recommended for this SWMU.
34	Scrubber Recycle Settler Tank	No further action is recommended for this SWMU.
35	Filter Press	No further action is recommended for this SWMU.

In addition to the SWMUs, two AOCs were identified in the PR Report: (1) the land surrounding the spent carbon unloading and transfer area, downwind to where carbon dust/particulate deposition may have occurred, and (2) the areas where past spills of domestic sewage, scrubber water discharge (blowdown), and motive/recycle water have occurred. Confirmation sampling is suggested for the two AOCs.

The Colorado River is the nearest major surface water body to the site and is greater than two miles northwest of the facility. Due to the distance a release would have to travel to reach the Colorado River, there is a low potential for surface water impacts directly from the facility.

Although spills have occurred in the past or may occur in the future at the facility, the potential for exposure of human or environmental receptors to hazardous constituents via groundwater is unlikely, due to the depth to groundwater, the high evapotranspiration rate, the promptness in Westates' response and clean-up, and the distance to the drinking water wells and the town municipal wells.

Several SWMUs were identified during the VSI where releases of low levels of contaminants to the air have intermittently occurred or are occurring. Low level and intermittent air releases from sumps, hoppers, and spills are likely to occur during normal operations, but they likely have a small or negligible effect off-site. Atmospheric deposition of airborne contaminants to the soil may occur from fugitive emissions of dust/particulates from unloading spent carbon at hopper H-1 and from stack emissions. Therefore, there is low potential that residual soil contamination could pose an exposure threat to on-site human or environmental receptors.

The locations of the SWMUs identified during the VSI are depicted on the SWMU map in Appendix D. Appendix A provides the VSI Photographic Documentation (Photographs F-1 through F-37). Appendix B provides the Sign-In Sheet for the VSI participants. The other appendices to this RFA report present significant information in support of recommendations for each SWMU and are listed in the Table of Contents of this RFA report.

2.0 INTRODUCTION

2.1 Purpose of the RCRA Facility Assessment

The 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA provide authority in the RCRA program to assist EPA in implementing corrective action at RCRA facilities. Corrective action is the process through which areas of a facility that could have received hazardous waste or constituents are evaluated and, if necessary, cleaned up. RCRA facilities include all facilities that currently treat, store, or dispose of RCRA-regulated hazardous waste or constituents (or have done so in the past). HSWA refocused the corrective action program from detecting and correcting future releases from regulated units, to cleaning up problems resulting from current and past waste management practices at RCRA facilities. The HSWA corrective action program addresses releases to all media including: groundwater, surface water, the atmosphere, surface soils and subsurface soils, both on and off-site; and sources across the entire facility.

The first step in the RCRA corrective action process is the RFA, which consists of an appropriate combination of the following steps: a facility file search (PR of records); a VSI; a Sampling Visit (SV), if deemed necessary; and completion of an RFA Report. RFAs compile existing information on environmental conditions at a given facility, including information on actual or potential releases. The RFA focuses on obtaining information on the potential that a release has occurred from any SWMU or any other area where wastes containing hazardous constituents have been managed at the facility.

A SWMU is defined as any discernable waste management unit at a RCRA facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste. The definition includes containers; tanks; surface impoundments; waste piles; land treatment units; landfills; incinerators; underground injection wells; physical, chemical, and biological treatment units such as recycling units; wastewater treatment units; above ground and below ground tanks (including 90-day or less accumulation tank); transfer (lift) stations; drum storage areas; and waste recycling areas.

In addition, EPA has interpreted the SWMU term to apply to areas contaminated by "routine, systematic, and deliberate discharges" of hazardous waste or hazardous constituents from process areas (a product may become a waste if it is discarded or abandoned). Routine and systematic releases constitute, in effect, management of wastes; the area at which this activity has taken place can thus reasonably be considered a SWMU. In addition to identifying releases from SWMUs, the RFA also investigates evidence of spills and/or other releases to any area resulting from waste management activities, which may not fit the definition of a SWMU release. The term "deliberate" is included in the SWMU definition to exclude from implementation of corrective action,

one-time accidental spills which cannot be linked to a discernible SWMU. An example of this type of release would be an accidental spill from a truck at a RCRA facility.

Under Work Assignment No. R09203, EPA Region 9 requested that Booz Allen Hamilton conduct an RFA of Westates located in Parker, Arizona on the Colorado River Indian Reservation. The first phase of the RFA was a file search at the EPA Region 9 offices in San Francisco, California and at the ADEQ office in Phoenix, Arizona. Brief interviews with ADEQ staff regarding the Westates facility records were conducted during the PR file search. The ADEQ interviews resulted in no file material different from what was found at EPA Region 9.

The second phase of the RFA was a VSI conducted at the facility on July 12, 2001. The purpose of the VSI was to visually inspect SWMUs and AOCs at the Westates facility, to identify additional SWMUs, and to fill site characterization information gaps identified during the PR by interviewing facility personnel and reviewing on-site records. The CRIT was invited to attend the VSI by EPA Region 9 but declined to send a representative. Based on the findings and conclusions of the PR/VSI portion of the RFA, a SV at the facility was not deemed necessary, and was not conducted at the Westates facility.

On February 4, 2002, following the VSI, a letter was sent to the CRIT by Booz Allen Hamilton requesting relevant information and data from their files to complete the RFA investigation. A response was received from a CRIT representative on February 8, 2002, indicating that no additional information or data relevant to the RFA is in the CRIT files.

2.2 General Procedures Used for Gathering Information

Each of the steps to the RFA requires the collection and analysis of data to support release determinations. During the PR process, existing information is evaluated, such as inspection reports and permit applications, and interviews are conducted with Federal, State, and Tribal personnel who are familiar with the facility. Additional site characterization information is gathered during the VSI, including visual observation of the site, interviews with the representatives of the facility, and review of requested file material from the facility and Tribal representatives.

2.3 Facility Information

The EPA Identification (ID) number for Westates is AZD982441263. The Standard Industrial Codes (SIC) for the facility are 4953 (refuse systems) and 9999 (otherwise unclassifiable establishments). The facility is located within the CRIT reservation lands.

The facility is divided into three main areas: (1) the receiving, unloading, and tank storage area; (2) the process (treatment) area; and (3) the reactivated carbon storage, packaging, and shipping area. The hazardous waste management areas are as follows: (1) a container and bulk receiving and unloading area; (2) a container storage warehouse area; (3) four spent carbon slurry storage tanks; (4) the carbon reactivation furnaces: RF-1 (1992-1996) and RF-2 (1996-present) and the associated air pollution control equipment. Facility layout maps are included in Appendix D to this RFA report, and a process flow diagram is provided in Appendix E.

The facility operates 24 hours per day, seven days per week, and therefore is staffed continuously by operating personnel. The facility employs approximately 24 people.

3.0 SITE DESCRIPTION

3.1 Site Location

The facility is located within the CRIT Industrial Park, an area zoned for commercial and industrial uses on the Colorado River Indian Reservation. The facility is adjacent to US 95 with access to I-8, I-10, and I-40. The site is about one mile southeast of Parker, Arizona, in the county of La Paz in Township 9 North, Range 19 West, and Section 7, at the Gila and Salt River Base Line and Meridian. The latitude of the facility is 34°07'55", and the longitude is 114°16'19.7". The facility is located on approximately 10 acres of land. One entrance to the facility for all vehicles exists from Mutahar Street. A delivery truck of spent carbon must pass through one gate to get to the unloading area of the facility. The gates to the facility are chain link and topped with barbed wire. Appendix C to this RFA report presents site location maps for the Westates facility.

The physical address for the facility is:

2523 Mutahar Street
Parker, Arizona 85344

3.2 Owner/Operator History

In May 1989, Westates approached the CRIT with a request to build a carbon reactivation facility in the CRIT Industrial Park in Parker, Arizona. On July 14, 1990, the CRIT approved the request for the land lease and facility construction on tribal lands. The agreement between Westates and the CRIT was then submitted to the U.S. Department of Interior, Bureau of Indians Affairs (BIA) for final approval. Final approval and a land lease agreement was signed effective April 1, 1991.

In February 1991, an Environmental Assessment (EA) was performed by Westates to comply with the National Environmental Policy Act (NEPA). The EA was required since the proposed carbon reactivation plant was to be constructed and operated on Indian Trust Lands. The Superintendent of the BIA determined that through implementation of the proposed action and environmental mitigation measures specified in the EA, the proposed Westates reactivation plant site would have no significant impact on the quality of the environment. The EA states that an Environmental Impact Statement (EIS) was not required.

The facility began operation on August 23, 1992. Westates Carbon Arizona, Inc. is owned and operated by:

Westates Carbon Arizona, Inc.
(US Filter Westates)

2523 Mutahar Street
Parker, Arizona 85344

The address of the property owner is as follows:

Colorado River Indian Tribes
Route-1, Box 23-B
Parker, Arizona 85344

3.3 Processes and Waste Management

The following process and waste management descriptions are based on information and data provided to EPA in the facility's 1995 RCRA Part B permit application and in EPA's Compliance Evaluation Inspection (CEI) Reports, and information gathered during the VSI. The spent carbon reactivation processes are depicted in the carbon reactivation process flow diagram in Appendix E.

Westates receives spent (used) activated carbon from off-site customers who use activated carbon in equipment to adsorb organic compounds from liquid and vapor phase processes and waste streams. Spent carbon is delivered by truck to Westates in containers (55-gallon drums or filter canisters) and in bulk-load tank trucks and roll-off bins. The spent carbon may be wet or dry upon arrival. Half of the waste received at the facility comes in containers, and about half of the spent carbon is received as manifested hazardous waste. The spent carbon is thermally reactivated in reactivation furnace RF-2. Reactivated carbon is certified nonhazardous and shipped off-site for reuse.

Westates' October 1996 Part A application identifies 449 hazardous waste codes acceptable for treatment at the facility (see Appendix F). The list of hazardous constituents that may be adsorbed to the spent carbon is extensive, and may include, but is not limited to, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), phthalates, amines, pesticides, and metals. Activated carbon is typically used to remove organic constituents from a liquid or gas stream. It is not customarily used to remove metals from a waste stream, although low concentrations of metals may be expected in spent carbon. Analytical results in 1994 and 1995 of monthly composite spent carbon samples indicated that the carbon contained traces of several metals, including arsenic, beryllium, cadmium and chromium (see Appendix F). Spent carbon characterized as corrosive or reactive is not accepted at Westates.

At Westates, two types of spent carbon are received, inspected, sampled, unloaded, and processed by thermal reactivation. The first type of carbon is known as wet carbon because of its use in aqueous systems. The amount of hazardous constituents in the wet carbon is typically less than five percent by weight. The particle size used in wet carbon

is generally smaller than the type used in vapor phase applications. The second type of carbon is used in vapor phase applications and is called dry carbon. Dry carbon may contain five to ten percent by weight of hazardous constituents. (These percentages were cited in the 1995 Part B permit application; however, Westates has provided information stating that actual percentages are generally lower.) Wet and dry spent carbon are mixed for processing through the reactivation furnace. Westates also reactivates nonhazardous spent carbon and combines hazardous and nonhazardous spent carbon for processing in the reactivation furnace.

Hazardous and nonhazardous waste in various forms of spent carbon is brought to the facility. Drivers of the trucks provide the appropriate manifests and Land Disposal Restriction (LDR) forms to an appropriate facility representative who checks this information against the waste profile sheets. Any discrepancies in manifests, LDR forms, or waste profile information are addressed before the waste is physically accepted for treatment.

An on-site laboratory reviews the hazardous waste manifests and other information concerning the potential incoming spent carbon as to its suitability for management. The waste is rejected if spent carbon cannot be appropriately treated at the operating conditions of the reactivation furnace.

For incoming drums, the square root of the number of drums in the shipment plus one is sampled. The sample is taken at a minimum depth of 6 inches below the top surface of the drum. Samples are analyzed at the on-site laboratory for pH and ignitability. Spent carbon received in bulk loads either in 10,000-pount (lb) roll-off bins or 20,000-lb slurry trucks is also sampled. Samples are collected from each roll-off bin and from representative locations in slurry truckloads. These samples are tested for pH, ignitability, and water reactivity.

Following receipt, inspection, and acceptance at the spent carbon transfer area containment pad (SWMU 9), spent carbon received in bulk load is typically transferred directly to one of the four spent carbon slurry storage tanks (SWMUs 10 through 13). The transfer occurs through the spent carbon unloading hopper H-1 (SWMU 4) and a pipe conveyance system, known as the spent carbon slurry and recycle water transfer system (SWMU 7). Spent carbon received in smaller containers, such as drums, is typically moved to the spent carbon storage warehouse (SWMU 8) in the container in which it was received, and subsequently transferred to one of the four slurry storage tanks via unloading hopper H-2 (SWMU 5) and the spent carbon slurry and recycle water transfer system (SWMU 7).

The spent carbon received at Westates requires a slurry system to move it from unloading hoppers to storage tanks and from storage tanks to the reactivation furnace. In the slurry system, water is added as the carbon passes through the unloading hopper

(H-1 or H-2) to facilitate removal of the spent carbon from the hopper by an eductor/extractor. The spent carbon is transferred from the unloading hoppers to the spent carbon slurry storage tanks as water-carbon slurry. Recycled water is added to the spent carbon to flush it out of the trucks and into the unloading hoppers. Excess water falls through a screen and goes through a filter, making the water reusable, and the water is recycled via piping to either Tank T-9 (SWMU 16) or Tank T-12 (SWMU 17). The trapped materials in the carbon filter are fed through the reactivation furnace.

From the slurry storage tanks, the water-carbon slurry is transferred via a piping system (SWMU 7) to the reactivation furnace RF-2 feed tank, T-18 (SWMU 15), and then to the reactivation furnace RF-2 (SWMU 2). Prior to introduction into the reactivation furnace, the water-carbon slurry is fed from Tank T-18 via a pipe system, to a dewatering screw at the top of RF-2 where the carbon is dewatered. The water from the dewatering screw is routed to one of two recycle motive water tanks, T-9 (SWMU 16) or T-12 (SWMU 17), where it is then recycled through the spent carbon slurry and recycle water transport system (SWMU 7). The dewatered spent carbon is then fed into the top hearth of the reactivation furnace by a weigh belt conveyor. The weigh belt weighs the spent carbon as it enters the furnace to ensure feed rate limits are not exceeded.

The dewatered spent carbon is thermally reactivated in RF-2 (SWMU 2). RF-2 is a multiple hearth furnace consisting of five hearths. The spent carbon is introduced into the top hearth and flows downward through the remaining four hearths. Reactivated carbon exits the bottom hearth through a cooling screw. Prior to being shut down, RF-1 (SWMU 1) was operated in a fashion similar to RF-2 but had four hearths instead of five. The spent carbon was introduced into the top hearth and flowed downward through the remaining three hearths. Reactivated carbon exited the bottom hearth also through a cooling screw.

Inside the reactivation furnace, the spent carbon travels from the upper hearths to the lower hearths thereby exposing the carbon to high temperatures. The high temperatures remove moisture from the spent carbon, desorb organic contaminants, and reactivate the carbon. The furnace is designed to remove benzene and other organic compounds from the spent carbon to non-detectable levels, and it removes benzene to a level that meets the minimum requirements of Subpart FF of the CAA. According to emissions tests conducted by Westates [but not verified by EPA (Reference: EPA personal communication, December 3, 2001)], the system achieves a destruction and removal efficiency of 99.99% (Appendix G).

The hot gases generated in RF-2 during the reactivation process then enter the RF-2 air pollution control equipment (SWMU 3), which includes an afterburner, venturi scrubber, packed bed scrubber, wet electrostatic precipitator, and emissions stack. The afterburner is designed for combustion of organic constituents that were not destroyed in the reactivation furnace. If the afterburner ever malfunctions, safety shut-down

devices will stop all processing activity to minimize the release of contaminants to the atmosphere. From the afterburner, the hot gases are routed through a venturi scrubber for particulate matter removal. From the venturi scrubber, the gases are routed to a packed bed scrubber for acid gas control. From the packed bed scrubber, the gases are routed to a wet electrostatic precipitator for additional particulate matter removal. From the wet electrostatic precipitator, the gases are routed through the emissions stack to the atmosphere.

The wet scrubbers employ a dual loop scrubbing system. The scrubber water is supplied to the wet scrubbers via a closed loop cycling system. A pump is used to route the scrubber water from scrubber water equalization tank T-19 (SWMU 19) to the upper section of the packed bed scrubber. A pump is also used to route the scrubber water from a tank in the bottom section of the packed bed scrubber to the venturi scrubber. From the wet scrubbers, the scrubber water is returned to Tank T-19 or periodically is discharged to the local publicly owned treatment works (POTW).

Adjustment of scrubber water pH occurs twice, once prior to introduction into the scrubbers, and again prior to discharge to the POTW. The pH of the scrubber water is controlled by the introduction of caustic (via a metering pump) into the scrubber water line just prior to introduction into the venturi and packed bed scrubbers. A continuous portion of the scrubber water is removed from the system (blow down) and discharged to the POTW. This discharge (blow down) limits the buildup of total dissolved solids (TDS) and it is pH adjusted and cooled prior to discharge. Scrubber water discharge (blow-down) from the former RF-1 air pollution control equipment was treated in the wastewater treatment and storage tank, Tank T-11 (SWMU 18), prior to discharge to the POTW. Scrubber water discharge from RF-2 is also treated in Tank T-11 before discharge.

A baghouse and a carbon adsorber (SWMU 6) have been installed to collect the carbon dust (particulates) from the incoming spent carbon hoppers during unloading. Hazardous particulates collected in the baghouse (SWMU 6) are returned to the furnace feed system for treatment or are disposed of in the facility hazardous debris bin. The particulate collection system is inspected for leaks or improper operation by facility personnel at least once each work shift.

All hazardous waste storage and treatment areas at the facility are surrounded by containment systems. All rainwater that falls within these containment systems is collected and routed to one of the two recycle/motive water tanks, T-9 (SWMU 16) or T-12 (SWMU 17), where it is used as make-up water to the spent carbon slurry and recycled water system (SWMU 7).

The facility has a small natural gas-fired boiler, which generates steam used in the reactivation process. The steam is injected into the bottom hearth of the furnace to

oxidize any remaining carbonaceous material in the carbon pores. This carbonaceous material is left behind in the pores when the organics volatilize in the upper hearths of the furnace. The boiler produces approximately 1,300 pounds per hour of steam and is fired by natural gas.

Reactivated carbon is removed from the bottom of the reactivation furnace and transported to three product storage tanks at the reactivated carbon, storage, packaging, and shipping area of the facility. As needed, reactivated carbon is moved via a dense phase transporter conveyor to the product packaging building where it goes through screens to separate the reactivated carbon into different sizes, and is placed in an appropriate container (either a drum or a bag) for shipment to customers. All steps in this process are performed under a particulate control system. The nonhazardous product particulates are captured by a hood, bagged as a product, and sold to the copper smelting industry.

A map depicting the SWMU locations that were verified during the VSI, is provided as Appendix D.

4.0 REGULATORY INVOLVEMENT

The following discussion is based on correspondence and documents cited in the references of this RFA Report.

4.1 EPA, CRIT, and State Regulatory Status, and Environmental Regulations

Westates is subject to regulation by EPA Region 9 and the requirements of a lease from the CRIT. Westates is not subject to regulation by the State of Arizona.

Federal environmental laws that the facility must comply with include: the Clean Water Act (CWA), the Clean Air Act (CAA), the Resource Conservation and Recovery Act (RCRA), and the Emergency Planning and Community Right-to-Know-Act (EPCRA).

CRIT Authority

The 10 acres of land on which the facility was constructed are part of Indian trust lands of the CRIT. Westates operates under the provisions of a lease with the CRIT and the BIA issued on April 1, 1990 (Lease No. B-1122-CR). The primary term of the lease is 20 years. Westates also has an option to renew the lease for an additional 20 years. Under the lease agreement, Westates pays rent to the CRIT.

Clean Water Act

Westates is subject to an "Industrial Wastewater Discharge Permit" issued by the Colorado River Sewage System Joint Venture (CRSSJV) on May 8, 1996. Under the conditions of the permit (No. 1002-96), Westates is permitted to discharge up to 150,000 gallons of wastewater per day from the facility to the CRSSJV Treatment Plant. The volume discharged to the local POTW averages about 120,000 gallons per day (gpd). The discharged water comes from Westates' wastewater treatment and storage tank, Tank T-11 (SWMU 18).

Based on the Fact Sheet for the "Industrial Wastewater Discharge Permit" issued by EPA to the CRSSJV (permit #AZ0021415) and the site inspection, Westates generates wastewater from the following specific areas within the facility: (1) domestic wastewater; (2) scrubber water discharge (blow-down) from the furnace off-gas system; (3) blow-down of boiler feed water; (4) wastewater from the cooling tower and cooling screw; (5) recycled water (contact motive water); (6) rain water falling within concrete containment area; and (7) facility wash-down water.

Pursuant to their current wastewater discharge permit, Westates must meet discharge limitations for flow, pH, TDS, and temperature. The pH, TDS, and temperature are monitored after the wastewater leaves the cooling tower. Also pursuant to the discharge permit, Westates monitors for total suspended solids (TSS) and chemical oxygen demand (COD) on a monthly basis at a manhole on-site, located just south of

the Administration Building. File material reviewed during the VSI did not indicate any violations of Westates' wastewater discharge permit. The POTW Discharge Report for February 1 through 28, 2002 demonstrates that the CRSSJV is in compliance with its permit limits (Appendix S).

EPA has made a preliminary determination that wastewater discharges from Westates are subject to new pretreatment standards under the CWA (Section 307), which restricts pollutant discharges for certain facilities that discharge wastewater indirectly through sewers flowing to POTWs. Under the CWA [40 CFR 437.2(c)], Westates meets the definition of a "centralized waste treatment (CWT) facility" and therefore is subject to the CWT rule pursuant to 40 CFR 437.1. Based on the wastes that Westates reported receiving in their 1993, 1995, and 1997 Biennial Reports, it appears that Westates accepts both metal-bearing and organic waste for treatment, and so is subject to standards found in 40 CFR 437.46(d). In July 2001, Westates submitted to EPA the Baseline Report required per the CWT discharge regulations (Appendix U). The analytical results for the CWT grab samples are pending. In the cover letter and report, Westates states that they have not determined if the CWT treatment standards apply to the facility.

Clean Air Act

Under the CAA, Westates is classified as a minor source of air pollutants. Hence, the carbon reactivation furnace RF-2 currently operating at Westates is not directly subject to permitting requirements of Title V of the CAA. To maintain eligibility for this exclusion from Title V permitting, Westates must make annual submittals of "actual emissions."

Westates treats waste generated by facilities subject to the National Emission Standard for Hazardous Airborne Pollutants (NESHAP) for Benzene Waste Operations (Subpart FF in 40 CFR 61.340, et seq.). As such, NESHAP Subpart FF for fugitive emissions applies to the spent carbon storage and treatment processes within the facility (Appendix O). Sources of potential benzene emissions from Subpart FF waste include the carbon adsorbers (SWMUs 29-31) which control VOC emissions from spent carbon storage and furnace feed tanks; emissions associated with the reactivation furnace RF-2 and the afterburner (SWMUs 2 and 3); fugitive emissions from the unloading of spent carbon into hoppers H-1 and H-2 (SWMUs 4 and 5); and fugitive emissions from containers of Subpart FF waste stored in the spent carbon storage warehouse (SWMU 8). NESHAP quarterly visual inspection records document the integrity of the process equipment for prevention of emissions of benzene. Westates' Annual Method 21 Testing Report summarizes the total fugitive emissions monitoring (required under 40 CFR 61.343, 345, and 349) that was performed by Westates on May 9, 2001 at specific locations on equipment, flanges, piping, etc. According to the report, monitoring was conducted with a Foxboro TVA 1000 FID, and no instrument reading exceeded 500 parts per million by volume (ppmv) over the background concentrations, demonstrating an absence of leaks (Appendix T).

The CAA Title III-Maximum Achievable Control Technologies (MACT) Standards set emission limits for hazardous pollutants. Subpart EEE of the MACT standards reflect the maximum degree of hazardous air pollution reduction that can be achieved considering the availability and impacts of emissions control technologies. The MACT rule applies to incinerators, cement kilns, and lightweight aggregate kilns. Subpart EEE sets emissions limits for these combustion units for dioxins and furans, mercury, semi-volatile metals (cadmium and lead), low volatile metals (arsenic, beryllium, chromium, and antimony), particulate matter, acid gas emissions (hydrochloric acid and chlorine), hydrocarbons, and carbon monoxide. Subpart EEE does not directly apply to the carbon regeneration furnace at Westates, since the furnace does not meet the definition of any of these types of combustions units. However, during the RCRA permit decision at Westates, EPA must apply any part of Subpart EEE that is appropriate for the carbon regeneration furnace at Westates. Please see further discussion of Subpart EEE below under "RCRA."

A continuous emissions monitor system (CEMS) was installed in the emissions stack to monitor the carbon monoxide and oxygen concentrations in the exhaust gas. Based on stack emissions testing, the facility operations have met technical standards set by the CAA through use of APCE (a venturi scrubber for particulate removal, a packed-bed scrubber for acid gas removal, and a wet electrostatic precipitator for additional particulate removal) and carbon adsorbers that treat the vapors from the spent carbon storage and furnace feed tank.

Resource Conservation and Recovery Act

EPA Region 9 has authority for implementing RCRA on Tribal lands. Westates initially submitted to EPA a notification of regulated waste activity on April 30, 1991, and received their EPA RCRA ID No. on May 6, 1991. On August 21, 1991, Westates submitted to EPA a Part A application, which allowed Westates to manage hazardous waste under interim status. Westates subsequently submitted revised Part A applications to EPA on September 4, 1992, November 30, 1992, January 4, 1994, and October 9, 1996 (Appendix F). The Part A submitted 1996 informed EPA of a name change only and did not add or delete hazardous waste and waste codes.

Westates qualified for interim status because it was an existing hazardous waste facility when regulations were passed affecting such facilities. In a letter dated March 25, 1992, EPA confirmed that Westates had qualified for interim status. In the original Part A filed in August 1991, Westates stated that it was seeking a permit for two thermal treatment units for carbon regeneration with a combined product design capacity of 1,200 lbs per hour. Westates also reported that construction of the first unit was completed in the Fall of 1992 (with a product design capacity of 600 lbs per hour), and that they were preparing to begin construction of the second unit (with a product design capacity of 1,200 lbs per hour). A letter from EPA states that the combined

treatment capacity cannot exceed the treatment capacity in the original Part A. Since the first unit (RF-1) was shut down in 1996 before startup of the second unit (RF-2), exceedance of the capacity specified in the Part A did not occur.

The facility currently manages hazardous waste in the following RCRA-regulated units: the reactivation furnace RF-2 (SWMU 2), the spent carbon warehouse (container) storage area (SWMU 8), and the spent carbon slurry storage tanks (SWMUs 10 through 13). The reactivation furnace RF-1 previously managed hazardous waste spent carbon. Westates is currently regulated under RCRA as a thermal treatment facility (40 CFR 265 Subpart P).

On August 30, 1993, EPA sent a "call-in" letter to Westates that requested the submittal of a Part B application for a permit under 40 CFR Part 264 Subparts X, AA and BB, for the facility. The facility submitted their Part B permit application to EPA in November 1995. Since the first thermal unit (RF-1) has been shut down and replaced with RF-2, and Westates is no longer proposing expansion for hazardous waste storage and treatment, Westates must revise their Part B permit application. In a letter dated February 19, 2001, EPA called in a revised Part B permit application to be submitted in June 2003.

In a letter dated January 18, 2001, EPA described their intention to apply the appropriate provisions of 40 CFR part 63, Subpart EEE of the CAA to Westates during their RCRA permit decision. In a subsequent letter dated August 21, 2001, EPA informed Westates that as a result of the U.S. Court of Appeals for the District of Columbia Circuit's decision in the litigation concerning Subpart EEE standards, it is unclear which standards will be in effect when EPA takes final action on Westates' RCRA permit application, pending further court developments and EPA action pursuant to the court's decision. However, EPA's RCRA permit decision will ultimately need to take into account the 40 CFR part 63, Subpart EEE standards of the CAA in effect at that time. EPA advised Westates to plan their Air Emissions Test to be conducted in 2002 with 40 CFR 63, Subpart EEE standards of the CAA in mind (Appendix Q).

In a letter dated August 21, 2001, EPA called in an Air Emissions Test Plan and Risk Assessment Work Plan from Westates to be submitted no later than November 1, 2001. The request was based on the RCRA requirements in 40 CFR 270.62, 40 CFR 264 Subpart O, and technical judgment regarding what may be necessary in order to protect human health and the environment as provided in 40 CFR 270.32(b)(2). At the request of Westates, the submittal date was extended, and Westates submitted the work plan and test plan in June 2002 and July 2002, respectively. EPA will use the results of the Air Emissions Test and the Risk Assessment to make the RCRA permit decision (Appendix Q).

Westates has previously conducted stack testing. In the 1995 Part B permit application, Westates submitted the 1993 and 1994 stack test data for RF-1. In February 2001, Westates submitted RF-2 stack test data from October 25-26, 2000. EPA has reviewed the results of the emissions tests and risk assessment. However EPA has not confirmed Westates' conclusions since EPA has not validated the data, and did not approve the test or the risk assessment protocols (Appendices G and L; Ref. EPA personal communication, December 3, 2001).

A letter dated February 21, 2001 from Westates to EPA states that RF-1 easily met the new MACT standards for dioxin emissions, and a letter from Westates to EPA dated May 21, 2002 provides more information about dioxin emissions (Appendix G). EPA did not oversee the testing reported in these letters, and so cannot confirm the results. Also according to the letter dated February 21, 2001, preliminary internal RF-2 stack test data from October 25-26, 2000 indicate that RF-2 meets MACT standards for mercury, particulate matter, semi-volatile metals cadmium and lead, low volatile metals arsenic, beryllium, chrome, hydrochloric acid/chlorine, and carbon monoxide, not only for existing sources, but also for new sources. However, the letter states that the report is preliminary and subject to change pending quality assurance/quality control (QA/QC) information from Air Kinetics (Appendix G), a consultant to Westates.

In August 2001, EPA requested that Westates perform an air emissions test and risk assessment in accordance with EPA approved protocol to provide information for the RCRA permit decision. This test and risk assessment will be closely overseen by EPA and will evaluate a wide variety of the contaminants that may be present in the stack gases.

EPA specified that all documents developed by Westates in support of its RCRA permit application are required to reflect appropriate provisions of Subpart EEE of the MACT Standards, the RCRA permitting requirements of 40 CFR 264 and 270, and applicable requirements of RCRA Subparts AA, BB, and CC. However, it is likely that none of the waste management units at the facility are subject to Subpart AA or BB. The facility is not subject to Subpart AA as there are no process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping. The facility is not subject to Subpart BB as testing data obtained in June 1994 and January 1995 demonstrated that the average VOC concentration in process streams is below the applicability threshold of Subpart BB of 500 parts per million by weight (ppmw). Certain tanks and containers at Westates are potentially subject to Subpart CC. However, the final Subpart CC regulations exempt all tanks and containers from all Subpart CC emission control, monitoring, sampling, testing, reporting and record keeping requirements provided the facility certifies that these waste management units are equipped and operated with air emission controls in accordance with the NESHAPs for Benzene Waste Operations (Subpart FF in 40 CFR 61.340, et seq.). Westates has made this certification.

As noted above under the section discussing the CAA, many units at Westates are subject to the NESHAP for Benzene Waste Operations (Subpart FF of the CAA). However, one unit not subject to the benzene NESHAP is Tank T-11 (SWMU 18). Tank T-11 collects scrubber water discharge (blow down), cooling water blow down, boiler blow down and recycle water from T-12 (SWMU 17), that has been filtered through activated carbon in PV50 (SWMU 33). Tank T-11 is therefore potentially subject to regulation under Subpart CC of RCRA, as it is not regulated under NESHAPs of the CAA.

A RCRA Closure Plan dated February 4, 1993 has been submitted to EPA. This closure plan describes eventual closure of the hazardous waste portion of the facility including all hazardous waste management units described in the facility's Part A application. Although the first thermal treatment unit (RF-1) was shut down in June 1996, and will not be restarted, closure has not occurred. Upon review of the closure plan, EPA found that Westates had failed to include a detailed description of the steps specifically needed to address closure of RF-1 and RF-2, the two multiple hearth furnaces.

Emergency Planning and Community Right-to-Know Act

The facility is subject to the emergency planning and notification requirements of SARA Title III under EPCRA. The facility must immediately notify the local emergency planning committee and the state emergency response commission if there is a release of a reportable quantity (RQ) of the listed hazardous chemicals that result in off-site exposure. During the VSI, no report was found in the facility file material of a release of a reportable quantity of a hazardous substance at Westates.

Westates filed a Toxic Release Inventory (TRI) Report (Form R) for source reduction and recycling activities for benzene. The report is for the reporting year 1999, as required by Section 313 of EPCRA. The quantity treated/recycled on-site in 1999 was 28,132 lbs.

4.2 EPA Enforcement Actions

In 1994, a civil administrative enforcement action was instituted pursuant to Section 3008 (a)(1) of RCRA, based on violations observed during an EPA inspection of the facility in August 1993. The requirements for Westates were specified in the "Consent Agreement and Final Order, Westates Carbon-Arizona, Inc., Docket No. RCRA-09-04-0001," issued to the facility on February 16, 1994, which included violations such as failure to obtain hazardous waste tank assessments prior to beginning operations, as well as numerous record keeping deficiencies. Westates has addressed all penalties and deficiencies.

On March 15, 1994, EPA conducted a hazardous waste investigation at the facility. Pursuant to Section 3008 of RCRA, EPA required the facility to correct the identified

areas of noncompliance and to submit documentation of their correction to EPA. The facility's subsequent response, dated August 10, 1994, adequately addressed the violations, and documented the facility's return to compliance with the regulations cited in the inspection report.

4.3 Inspection History

Since Westates began operation in 1992 through 1998, EPA conducted eight compliance inspections at the facility, and prepared reports for six of those inspections. The inspections performed in September 1994, September 1996, and December 1998 found no violations at Westates. The inspection in March 1995 found two potential violations: failure to submit the 1993 biennial report by the deadline and failure to accurately report wastes generated. Westates addressed these violations within one week. The inspection on March 15, 1994 found one potential violation: absence of a piece of documentation in the facility's personnel training files. Westates addressed this violation within six weeks.

The inspection in August 1993 found the following 11 potential violations at Westates:

- Failure to properly label and date containers of RCRA hazardous waste
- Waste analysis plan deficiencies
- Failure to follow waste analysis plan
- Failure to remedy problems discovered during inspections in a timely manner
- Failure to operate in a way that minimizes the possibility of a hazardous waste release
- Contingency plan deficiencies
- Operating record deficiencies
- Failure to obtain tank assessments
- Failure to maintain containment for tank free of cracks and gaps
- Failure to conduct daily inspections of waste feed cutoff systems
- Storage of RCRA hazardous waste in an area not specified in Part A permit application.

As stated above, EPA issued a determination of violations regarding these items to Westates in February 1994. EPA negotiated a Consent Agreement and Final Order with Westates regarding the violations, which was finalized in August 1995. In the Order, Westates was assessed a civil penalty of $57,515.

In June 2001, EPA conducted a hazardous waste inspection at Westates. The purpose of the inspection was to make a determination on the continuing acceptability under the CERCLA Off-Site Rule (40 CFR §300.440) and to collect information pertaining to compliance with RCRA. The inspection found the following potential violations of RCRA:

- A drum in the satellite accumulation area holding discarded samples was not closed
- The drum in the satellite accumulation area was not marked "hazardous waste"
- Written job description did not include duties of personnel assigned to each position and requisite skill
- The required agreements were in the Contingency Plan, however, they did not specify either the police or fire department with primary emergency authority
- Review of the Closure Plan revealed four potential violations
- The external liner for the tank system did not appear to be designed or operated to contain 100% of the capacity of the largest tank and contain run-on
- The external liner system did not appear free of cracks or gaps.

The inspection report also identified areas of concern and areas requiring further clarification, such as a basis for determining the type of training necessary to comply with the visible emissions evaluation for opacity for thermal treatment units and the rationale for identification of the constituents in F039 when Westates is the generator.

Westates sent a response letter to EPA on August 20, 2001 to address the findings. On December 17, 2001, EPA sent Westates a Warning Letter and a copy of the investigation report for their information and response. EPA required Westates to address the potential violations pursuant to Section 3008 of RCRA [42 U.S.C. 6928] within 30 days of receipt of the Warning Letter.

In January 2002, EPA conducted a hazardous waste inspection at Westates. The purpose of the inspection was to make a determination on the continuing acceptability under the CERCLA Off-Site Rule (40 CFR §300.440) and to confirm the status of the potential violations identified during the June 2001 inspection. No new potential violations were identified during the January 2002 inspection. EPA prepared an inspection report in April 2002. This inspection report confirmed that many of the potential violations identified during the June 2001 inspection were resolved. The following potential violations remain unresolved:

- The closure plan does not contain a detailed description of the steps necessary to close the two furnaces, and it was not amended to reflect closure of the inactive furnace
- The concrete containment pad for the tanks may not be large enough to contain 100% of the volume of the largest tank and contain run-on from other parts of the facility
- The concrete containment pad did not appear to be free of cracks or gaps.

5.0 ENVIRONMENTAL SETTING

The information summarized in the following subsections was cited from the *Final Environmental Assessment* performed in February 1991 for construction of the Westates facility on Colorado Indian Tribal Lands, as referenced at the end of this RFA report.

5.1 Climate

The climate is typical of the Sonora and Mojave Desert Regions and the Gila Desert. Winters are mild with minimum temperatures above freezing. The summers are long, hot, and dry with temperatures commonly exceeding 100° F. Average total precipitation is approximately 3.82 inches per year. Precipitation is sporadic, occurring mainly in the time intervals of July through September, and December through February. The 24-hour, 25-year storm water event has been reported to be equal to the average precipitation. The evaporation rate in this area is 86 inches per year.

5.2 Geology

The area is characterized by roughly parallel mountain ranges separated by alluvial basins. The elevation of the basins varies between sea level and 1,000 feet. The mountains are rugged and rise abruptly from the Colorado River or from alluvial slopes. The highest mountain summits in the region reach an average elevation of around 3,300 feet. Between the flood plain and the mountains are piedmont slopes, which are dissected by washes from the mountains and, in a few exceptions, into adjacent and topographically distinct basins. The facility is located on relatively flat terrain, with slopes of zero to three percent.

The geologic units considered important to water resource development at the location of the facility are the Miocene Fanglomerate, the Bouse Formation, and the alluvium of the Colorado River and its tributaries. The rocks of the mountains are relatively impermeable, and form the boundaries of the groundwater reservoirs. Interbasin water movement is limited by the impermeable bedrock and limited to groundwater movement in surface sediments, where intermittent surface drainage exits from a basin.

The bedrock includes all rocks older than the Miocene Fanglomerate, and contains sedimentary, metamorphic, and igneous rocks. These Miocene beds are gravel deposits that have eroded from the mountains and filled the basins. The thickness of these beds varies widely across the basins. The Fanglomerate is a potentially important aquifer near Parker, where wells with a yield of 15 gallons per minute per foot of drawdown, have been developed.

Samples taken at the site prior to construction of the facility indicated that only the eolian (windblown) sand and silt are present. The eolian sand is tan to light tan and

fine to medium grained, occurring as a deposit on the surface throughout the area. The Westates site soil is classified as Superstition series, which is a gravelly loamy fine sand that develops on zero to three percent slopes.

5.3 Hydrology

5.3.1 Surface Water

The facility is located approximately 2.8 miles southeast of the Colorado River. Hence, the distance from the facility to the nearest surface water body is greater than two miles.

The flood plain of the river is less than one mile wide near Parker, and increases to nine miles in the Parker Valley. The flood plain is that part of the Colorado River Valley that has been covered by floods of the Colorado River, prior to construction of Hoover Dam. The elevation of the flood plain near Parker is approximately 360 feet above sea level.

5.3.2 Groundwater

Groundwater in the Parker area occurs in both confined and unconfined aquifers. Most of the wells are completed in the Colorado River gravels (alluvium), where unconfined or water table conditions prevail. The Miocene Fanglomerate (gravel deposits at the base of mountains) and the lower part of the Bouse Formation contain confined aquifers (artesian). The geological age is not certain. The city wells in Parker obtain most of their water from the Miocene Fanglomerate. Sources of recharge to the groundwater supply of the area are the Colorado River, precipitation, and underflow from areas bordering Parker Valley.

A large amount of the groundwater is lost through evapotranspiration in the Parker area. Direct recharge from precipitation is limited. Loss of water from the Colorado River provides almost 50 percent of the recharge to the groundwater near Parker.

The groundwater elevation near Parker is approximately 350 feet above sea level. The depth to the groundwater in the areas bordering the flood plain ranges from 70 to 300 feet below the land surface. The depth to groundwater at the facility is 80 to 100 feet, and groundwater flow direction is to the southwest.

Chemical quality of the groundwater in the Parker area is generally related to the source and movement of the water. The chemical quality of the groundwater is influenced by evaporation, transpiration by native vegetation, former flooding of the river, irrigation developments, and to a marked degree by the local geology. The groundwater beneath the floodplain is relatively poor in quality, except where irrigation water has entered the aquifer. The shallow groundwater in the non-irrigated part of the valley has twice the mineral content as the Colorado River water.

The drinking water from four wells within four miles of the Westates facility, which are on CRIT property, meets all primary water quality standards in the CWA. The Town of Parker's water source is groundwater. The town water system is routinely monitored for constituents in drinking water according to Federal and State laws. The depth to the surface of the groundwater is approximately 75 feet near the center of town (90 feet at the well in the northeast corner of town, which is on higher ground) and flows from the northeast to the southwest. There are three active town wells (Well No. 6, Well No. 7, and Well No. 8) that the ADEQ considers to be groundwater for regulatory purposes. The town is no longer taking water directly from the Colorado River. All of the water pumped in 2000 was well water, pure and untreated. The 2000 water quality testing yielded only one non-acute violation for distribution system water quality.

5.4 Air/Wind

The closest sources of surface meteorological data for use in the air dispersion model for the Westates human health risk assessment (Appendix L) were Needles, CA, approximately 60 miles north of the facility, and Blythe, CA, approximately 60 miles south of the facility. Both Needles and Blythe are located along the Colorado River, with terrain features similar to those found in Parker. Analysis of wind distribution by the U.S. National Climatic Data Center shows strong north-south components at both sites that reflect the influences of the surrounding terrain. A Wind Rose that provides the direction of prevailing winds at Needles is presented in Appendix H. A similar north-south predominance of wind direction at the facility would be expected due to its surrounding terrain, which is generally similar to that present near the Blythe and Needles monitoring stations.

5.5 Land Use

About 45 percent of the CRIT Reservation is used for irrigated farming. Most of the remainder of the Reservation is rangeland used for seasonal livestock grazing. The CRIT Industrial Park comprises approximately 1,140 acres set aside for commercial and light industrial use. Westates acquired a Land Use Permit from the CRIT to operate the carbon reactivation facility (Permit Number B1122-CR 30.7).

5.6 Biological Environment

The Westates facility is located on CRIT land that is a transition zone between the Sonora and Mojave Deserts.

Desert Flora

Terrestrial vegetation at the facility site is associated with the desert scrub community of the Gila Desert. Creosote bush and burro bush are the predominant plant

communities. Other native plants living in the area include desert trumpet, snakeweed, scorpion weed, lupine and brittlebush. Vegetation is sparse in most areas.

Desert Fauna

Songbirds, small mammals, amphibians and reptiles are common in the Gila Desert Cactus Plain at the Parker site.

Unique Ecosystems

The cactus plains dune ecosystem is located approximately one-half mile east of the facility. The dunes provide a natural habitat to the Mojave fringe-toed lizard (*Uma Scoparia*), which is a candidate species on the Arizona Threatened Native Wildlife list. This species is threatened due to general loss of dune habitat. The facility is located in the flat cactus plain area outside the dune area.

Endangered or Threatened Species and Protected Birds

After a site survey in March 1990, it was determined that no listed endangered plants or animals were found at the site proposed for building the carbon reactivation plant. However, there may be several Federally-listed, endangered or threatened species and birds protected under the Migratory Bird Treaty Act within the Parker area on CRIT property. To make the RCRA permit decision, EPA has requested that a species survey be conducted as part of an Ecological Risk Assessment to determine the potential for the presence of the following species and to identify potential ecological receptors: the razorback sucker (*Xyrauchen texanus*)(endangered), also known as the humpback sucker in older literature; the desert tortoise (*Gopherus agassizii*)(threatened), critical habitat has been designated across the state line in California; the bony tail chub (*Gila elegans*)(endangered); the peregrine falcon (*Falco perigrinus*)(Migratory Bird Treaty Act); the southwestern willow flycatcher (*Empidonax Traillii extimus*)(endangered); brown pelican (*Pelicanus occidentalis*)(endangered); Yuma clapper rail (*Rallus longirostris yumanensis*)(endangered); and the burrowing owl (*Athene cunicularia*)(Migratory Bird Treaty Act, also fully protected across the state line in California).

6.0 SOLID WASTE MANAGEMENT UNITS

The following SWMUs operated by Westates have been identified and visually inspected, where possible during the VSI. A map of the location of SWMUs is attached as Appendix D. Photographic documentation of the VSI tour of the facility is provided as Appendix A (Photographs F-1 through F-37). A detailed description of each SWMU is provided below based on the site characterization information and data which was cited in correspondence between EPA, Westates, and the Colorado River Indian Tribal representatives; in the Part B permit application; and/or obtained during the VSI interview with Westates representatives. The relevant cited references are provided in the Reference Section at the end of this RFA report.

Table 1 summarizes information specific to each of the SWMUs. The information presented includes a description of the location, age, dimensions, and materials of construction for each unit.

Table 2. Specific Information on SWMUs at Westates Carbon					
SWMU	**Description**	**Location**	**Age**	**Dimensions**	**Material of Construction**
SWMU 1	Spent carbon reactivation furnace RF-1 (shut down in 1996); CEMS moved to RF-2, and RF-1 stack removed at shutdown (mild steel, 155 ft, inside diameter 1 ft)	South of RF-2	1992 to 1996	Height – 14 feet (ft), 2 inches (in); outside diameter – 9 ft, 3 in; 4 hearths	Furnace shell – carbon steel; internally lined with firebrick and block insulation; hearths and furnace roof constructed with firebrick; furnace roof is comprised of firebrick backed with block insulation and castable insulation; bottom hearth is insulated with block insulation and castable insulation
SWMU 2	Spent carbon reactivation furnace RF-2	East of warehouse	1996 to present	Height –19 ft, 8 in; 10 ft off the ground; outside diameter – 12 ft, 10 in; 5 hearths, total hearth surface area 355 ft^2	Furnace shell – carbon steel; internally lined with firebrick and block insulation; hearths and furnace roof constructed with firebrick; furnace roof is comprised of firebrick backed with block insulation and castable insulation; bottom hearth is insulated with block insulation and castable insulation; continuously seal welded internally to assure an air-tight assembly

Table 2. Specific Information on SWMUs at Westates Carbon					
SWMU	**Description**	**Location**	**Age**	**Dimensions**	**Material of Construction**
SWMU 3	RF–1 Air pollution control equipment				
	Afterburner	RF-1 structure	1992 to 1996	5 ft, 8 in height	Refractory lined steel
	Venturi scrubber	RF-1 structure	1992 to 1996	24 in diameter; 16 ft, 5.4 in height	Hastelloy C
	Packed bed scrubber	RF-1 structure	1992 to 1996	3 ft, 6 in diameter; 22.5 ft height	Fiberglass
	Emissions stack with CEMS system	RF-1 structure	1992 to 1996	Stack height 115 ft; inside diameter 1 ft	Mild steel
	RF–2 Air pollution control equipment				
	Afterburner	RF-2 structure	1996 to present	5 ft diameter; 25 ft, 2 in height	Refractory lined steel cylinder chamber
	Venturi scrubber	RF-2 structure	1996 to present	4 ft, 6in outside diameter; 27 ft height	Hastelloy C
	Packed bed scrubber	RF-2 structure	1996 to present	4 ft, 6 in diameter 27 ft height	Fiberglass
	Wet electrostatic precipitator	RF-2 structure	1996 to present	6 ft by 6 ft by 25 ft	Fiberglass/Algxn
	Induced draft fan and emissions stack with CEMS	RF-2 structure	1996 to present	Stack height 110 ft, inside diameter 1 ft	Fiberglass surrounded by a mild steel shell

Table 2. Specific Information on SWMUs at Westates Carbon					
SWMU	**Description**	**Location**	**Age**	**Dimensions**	**Material of Construction**
SWMU 4	Spent carbon unloading hopper H1	North end of facility on containment	1996 to present	5000 lbs.	Mild steel
SWMU 5	Spent carbon unloading hopper H2	Inside warehouse facing east wall	1992 to present	500 lbs	Mild steel
SWMU 6	Hopper air pollution control equipment	At SWMUs 4 and 5	1992 to present		Mild steel
SWMU 7	Spent carbon slurry transfer system	East of the warehouse on containment	1996 to present	4 in pipes hopper to tank; 3 in pipes tank to furnace	316 stainless steel
SWMU 8	Spent carbon storage warehouse	Inside warehouse	1992 to present	80 ft by 80 ft	Concrete/metal
SWMU 9	Spent carbon transfer area containment pad	North area of facility	1992 to present	2002 ft^3 or 14,969 gallons (gal); approx. 44 ft by 152 ft	Concrete
SWMU 10	Spent carbon slurry storage tank, T–1	East of warehouse on containment	Used tank (1956); 1992 to present	8319 gal design capacity	300 series stainless steel
SWMU 11	Spent carbon slurry storage tank, T–2	East of warehouse on containment	Used tank (1956); 1992 to present	8319 gal design capacity	300 series stainless steel
SWMU 12	Spent carbon slurry storage tank, T–5	East of warehouse on containment	Used tank; (1956); 1992 to 1996	8319 gal design capacity	300 series stainless steel

Table 2. Specific Information on SWMUs at Westates Carbon					
SWMU	**Description**	**Location**	**Age**	**Dimensions**	**Material of Construction**
SWMU 13	Spent carbon slurry storage tank, T–6	East of warehouse on containment	Used tank; (1956); 1992 to 1996	8319 gal design capacity	300 series stainless steel
SWMU 14	RF–1 feed tank T–8 (cleaned out, not operating since RF-1 shutdown in 1996)	RF–1 Structure	1992 to 1996	905 gal	300 series stainless steel
SWMU 15	RF–2 furnace feed system (feed tank T–18, dewatering screw, and weigh belt conveyer)				
	T-18	RF-2 structure	1996 to present	5000 gal	300 series stainless steel
	Dewatering screw and weigh belt conveyor	RF-2 Structure	1996 to present	Length 17 ft; diameter of the screw 8 in	300 series stainless steel
SWMU 16	Recycled motive water storage tank, T–9	East of warehouse on containment	1996 to present	10,500 gal	316 series stainless steel
SWMU 17	Rainwater and motive water storage tank, T–12	East of warehouse on containment	1992 to present	25,080 gal	Mild steel
SWMU 18	Wastewater storage tank, T–11	East of the warehouse and south of RF -2	1996 to present	Approx. 20,000 gal; 10 ft outside diameter; 20 ft height	Fiberglass

Table 2. Specific Information on SWMUs at Westates Carbon					
SWMU	**Description**	**Location**	**Age**	**Dimensions**	**Material of Construction**
SWMU 19	RF–2 scrubber water equalization tank, T-19	Under RF-2 Structure	1996 to present	Approx. 1000 gal	Fiberglass
SWMU 20	Hazardous waste debris bin	North of warehouse on containment by H-1	1992 to present	20 cubic yards	Mild steel
SWMU 21	Spent carbon storage warehouse grated trenches and sump	Warehouse in containment area	1992 to present (con-structed from 1992 to 1996)	3 ft, 4 in square sump U-drain 50 ft long, 16 in wide; cross drain sections 40 ft long 16 in wide	Concrete
SWMU 22	Spent carbon storage warehouse barrel washer	Next to H-2 in warehouse	1998 to present	2 ft by 3 ft	300 series stainless steel
SWMU 23	Bermed containment area under spent carbon slurry storage tanks	East of Warehouse	1996 to present	3938 ft^3 or 29,455 gal; approx. 180 ft by 56 ft	Concrete
SWMU 24	Sump by unloading hopper H-1	North corner on containment	1996 to present	3 ft, 4 in square sump	Concrete
SWMU 25	Sump by storage tank, T–9	East of warehouse in between T-9 and RF-2	1992 to present	3 ft, 4 in square sump U drain 30 ft long, 16 in wide	Concrete

Table 2. Specific Information on SWMUs at Westates Carbon					
SWMU	**Description**	**Location**	**Age**	**Dimensions**	**Material of Construction**
SWMU 26	Sump by cooling screw under venturi scrubber tank	East of warehouse beside RF-2	1996 to present	3 ft, 4 in square	Concrete
SWMU 27	Water conveyance piping to wastewater treatment tank	East of RF-2 structure	1996 to present	3 in piping	PVC
SWMU 28	Water lift station and piping system (not operating) and new piping system installed in 1996	At the end of access road to plant. Old piping from Tank T-11 to the Lift Station; new piping bypasses Lift Station to POTW	1992 to 1996; new piping 1996 to present	Approx. height 15 ft; outside diameter 5 ft	Lift Station: mild steel/316 stainless steel/fiberglass Old piping system either PVC or ductile iron; new (1996) piping system PVC
SWMU 29	Carbon adsorber WS-1	Beside spent carbon storage tank	1992 to present	1000 lbs	Mild steel
SWMU 30	Carbon adsorber WS-2	Beside T-9	1992 to present	5000 lbs	Fiberglass
SWMU 31	Carbon adsorber WS-3	Beside RF–2	1996 to present	1000 lbs	Mild steel

Table 2. Specific Information on SWMUs at Westates Carbon					
SWMU	**Description**	**Location**	**Age**	**Dimensions**	**Material of Construction**
SWMU 32	Carbon adsorber PV-50	Beside T-12	New canisters substituted from inventory; not always the same	1000 lbs	Mild steel or fiberglass
SWMU 33	Slurry transfer inclined plate	Adjacent to the venturi scrubber	1992 to 1994 or 1995		Mild steel
SWMU 34	Scrubber recycle settler tank	Tank on RF-1	1992 to 1996		Mild steel
SWMU 35	Filter press	Next to scrubber system for RF-1	1992 to 1994		Mild steel with polypropylene plates